Fig.1
PRIOR ART

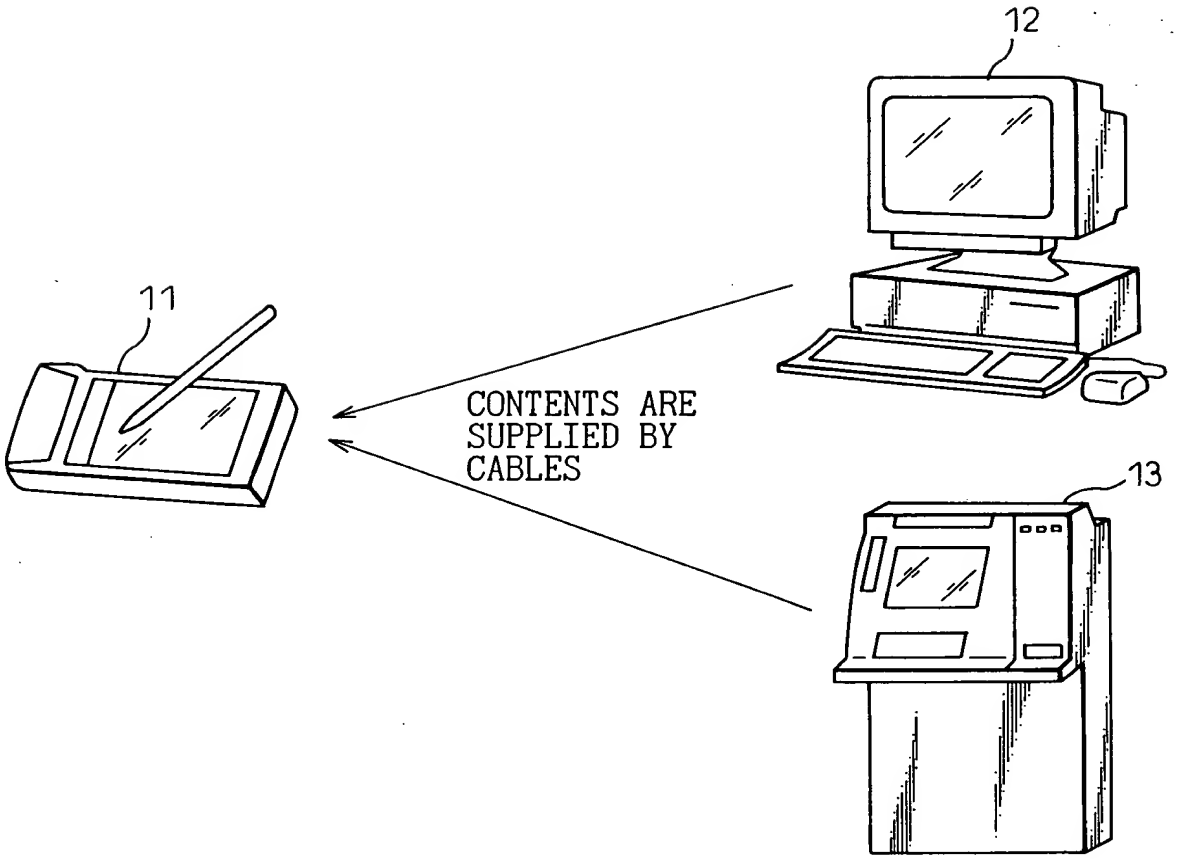


Fig.2
PRIOR ART

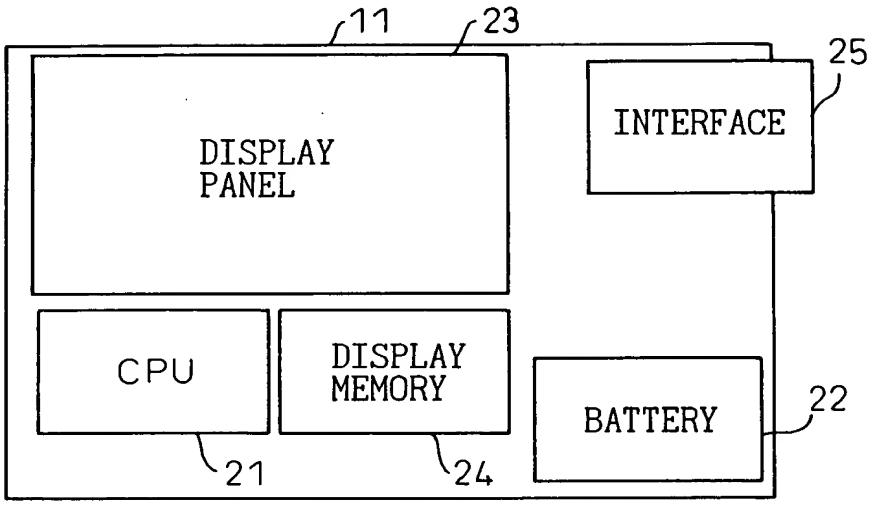


Fig.3

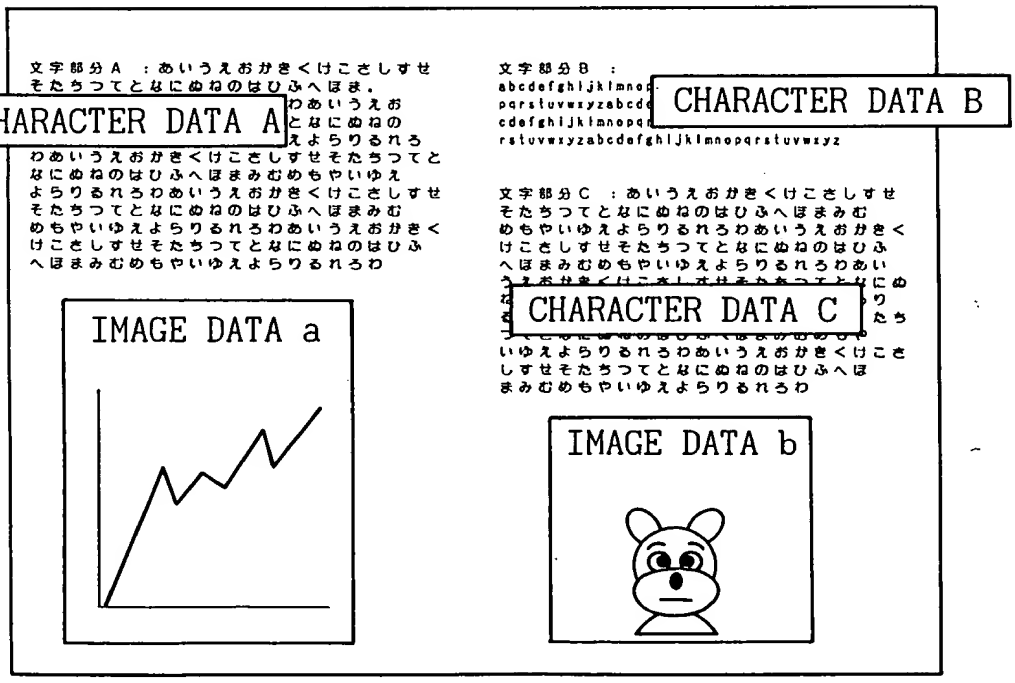
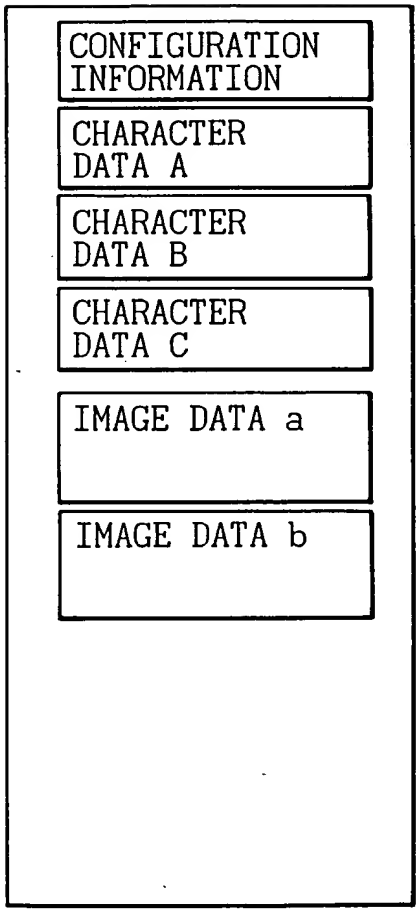


Fig.4



DOCUMENT CONFIGURATION INFORMATION	FORM INFORMATION ID OF EACH ELEMENT POSITION AND APPEARANCE INFORMATION OF EACH ELEMENT
CHARACTER DATA	FONT SIZE FONT TYPE COLORED CHARACTER INTERVAL
IMAGE DATA	IMAGE FILE TYPE IMAGE SIZE

Fig.5

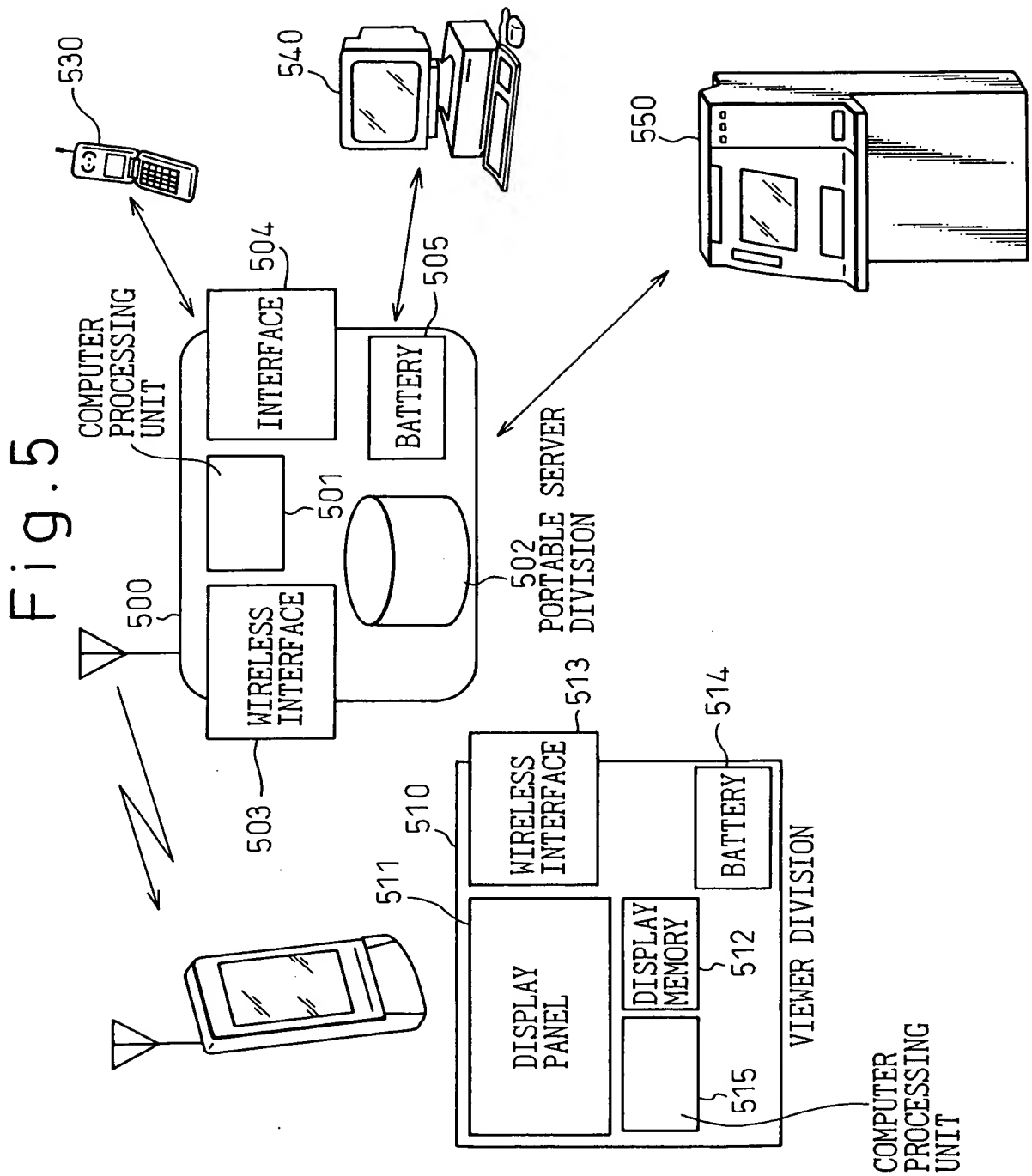

530
540
550
504
505
COMPUTER PROCESSING UNIT
INTERFACE
BATTERY
501
500
WIRELESS INTERFACE
502 PORTABLE SERVER DIVISION
503
513
514
510
511
WIRELESS INTERFACE
BATTERY
DISPLAY PANEL
DISPLAY MEMORY
512
515
VIEWER DIVISION
COMPUTER PROCESSING UNIT

Fig.6

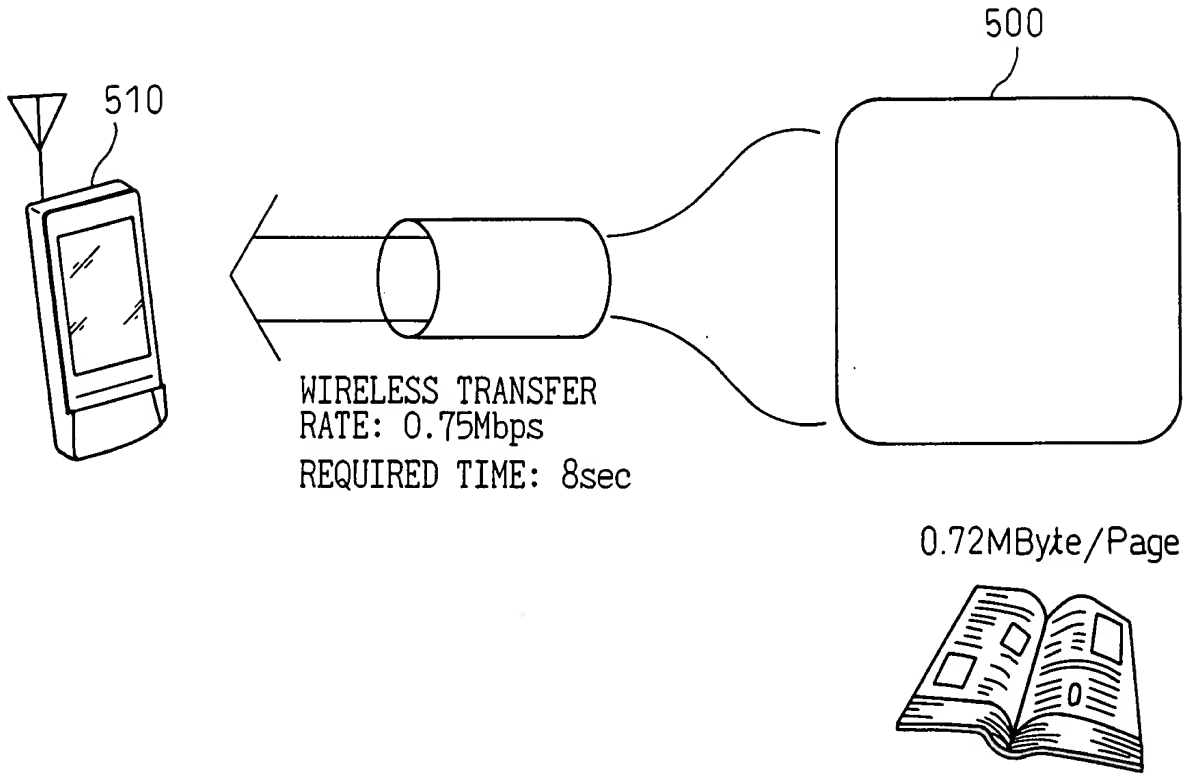

500
510
WIRELESS TRANSFER
RATE: 0.75Mbps
REQUIRED TIME: 8sec
0.72MByte/Page

Fig.7

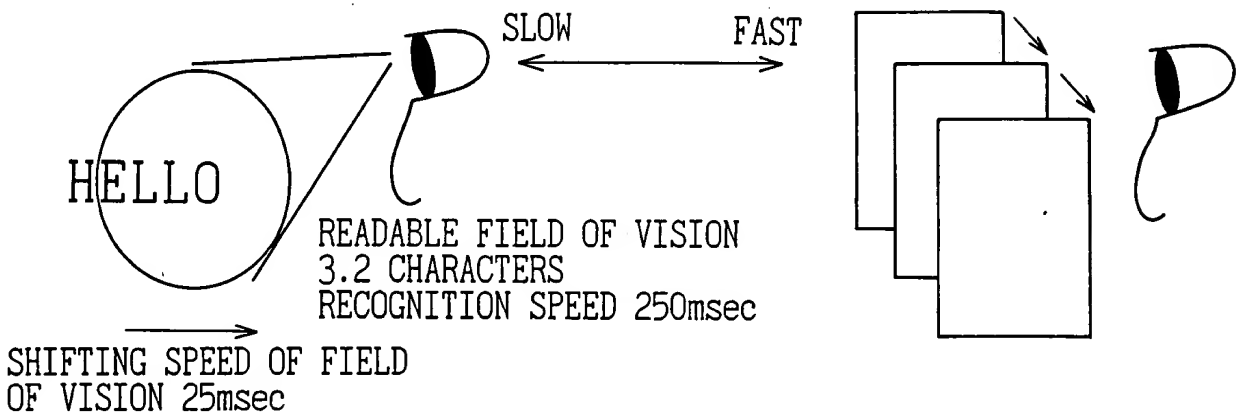

SLOW
FAST
HELLO
READABLE FIELD OF VISION
3.2 CHARACTERS
RECOGNITION SPEED 250msec
SHIFTING SPEED OF FIELD
OF VISION 25msec
READING SPEED 100sec/PAGE
PAGE REFERENCE
SPEED 0.25sec/PAGE

Fig.8

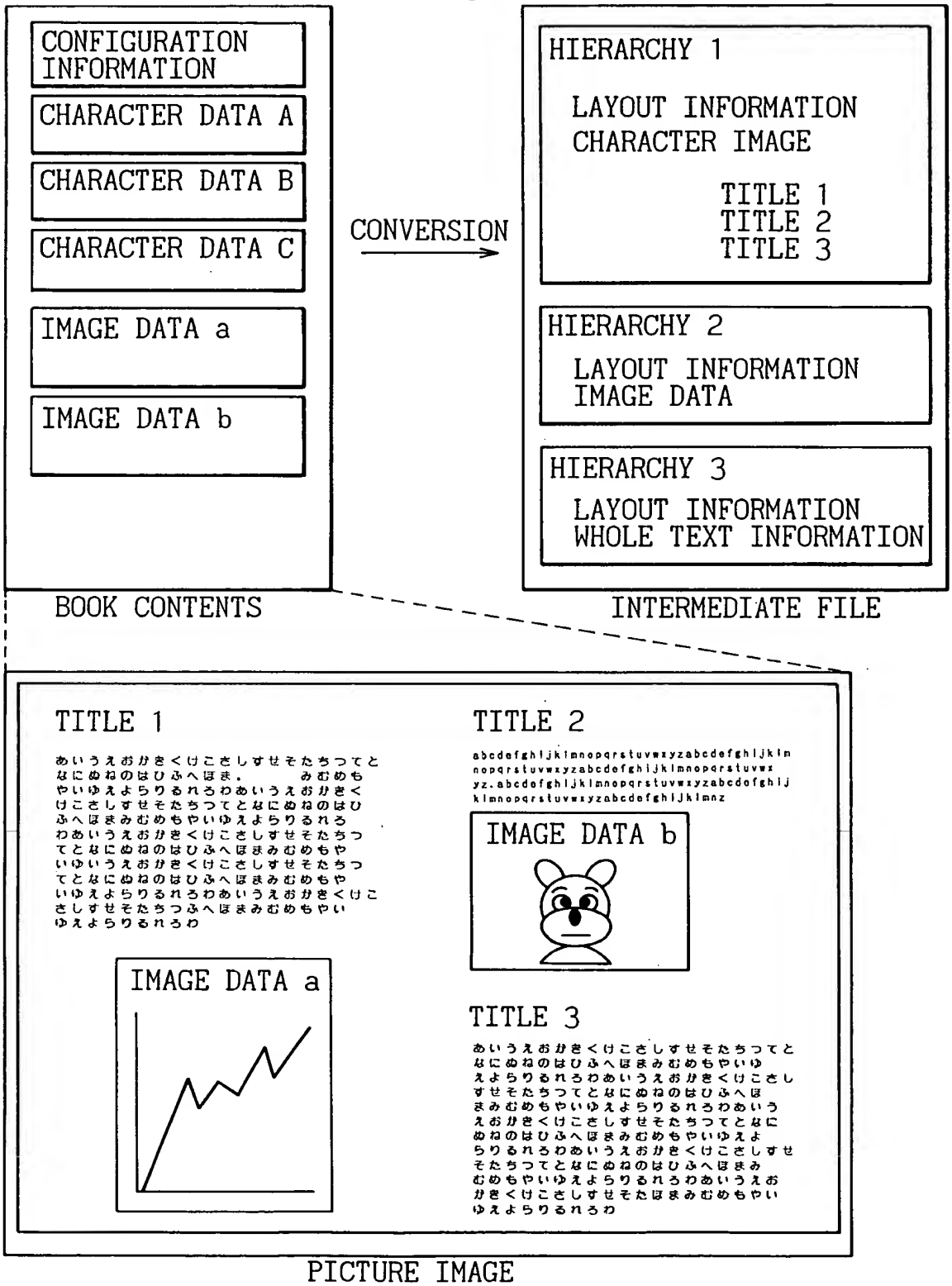

CONFIGURATION INFORMATION
CHARACTER DATA A
CHARACTER DATA B
CHARACTER DATA C
IMAGE DATA a
IMAGE DATA b
BOOK CONTENTS
CONVERSION
HIERARCHY 1
LAYOUT INFORMATION
CHARACTER IMAGE
TITLE 1
TITLE 2
TITLE 3
HIERARCHY 2
LAYOUT INFORMATION
IMAGE DATA
HIERARCHY 3
LAYOUT INFORMATION
WHOLE TEXT INFORMATION
INTERMEDIATE FILE
TITLE 1
TITLE 2
IMAGE DATA b
IMAGE DATA a
TITLE 3
PICTURE IMAGE

Fig.9

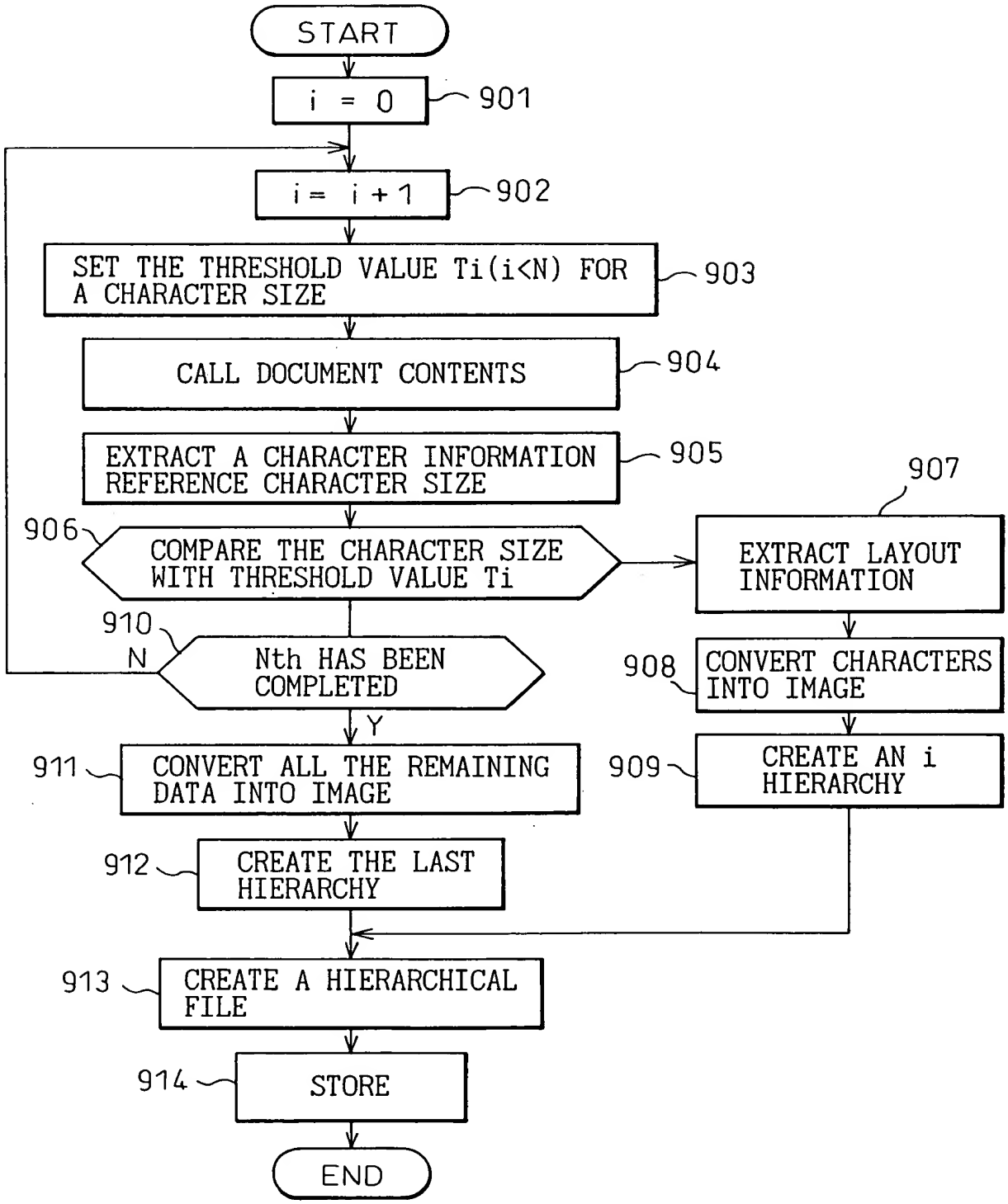

START
i = 0
901
i = i + 1
902
SET THE THRESHOLD VALUE Ti(i<N) FOR A CHARACTER SIZE
903
CALL DOCUMENT CONTENTS
904
EXTRACT A CHARACTER INFORMATION REFERENCE CHARACTER SIZE
905
906
COMPARE THE CHARACTER SIZE WITH THRESHOLD VALUE Ti
907
EXTRACT LAYOUT INFORMATION
910
N
Nth HAS BEEN COMPLETED
908
CONVERT CHARACTERS INTO IMAGE
Y
911
CONVERT ALL THE REMAINING DATA INTO IMAGE
909
CREATE AN i HIERARCHY
912
CREATE THE LAST HIERARCHY
913
CREATE A HIERARCHICAL FILE
914
STORE
END

Fig.10

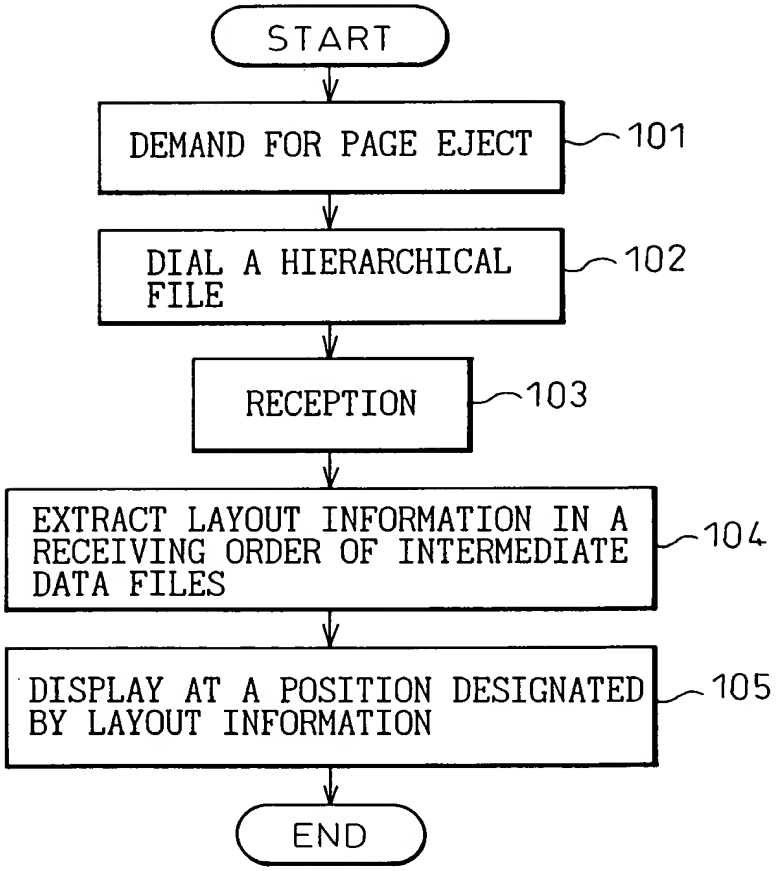

START
DEMAND FOR PAGE EJECT
101
DIAL A HIERARCHICAL FILE
102
RECEPTION
103
EXTRACT LAYOUT INFORMATION IN A RECEIVING ORDER OF INTERMEDIATE DATA FILES
104
DISPLAY AT A POSITION DESIGNATED BY LAYOUT INFORMATION
105
END

Fig.11

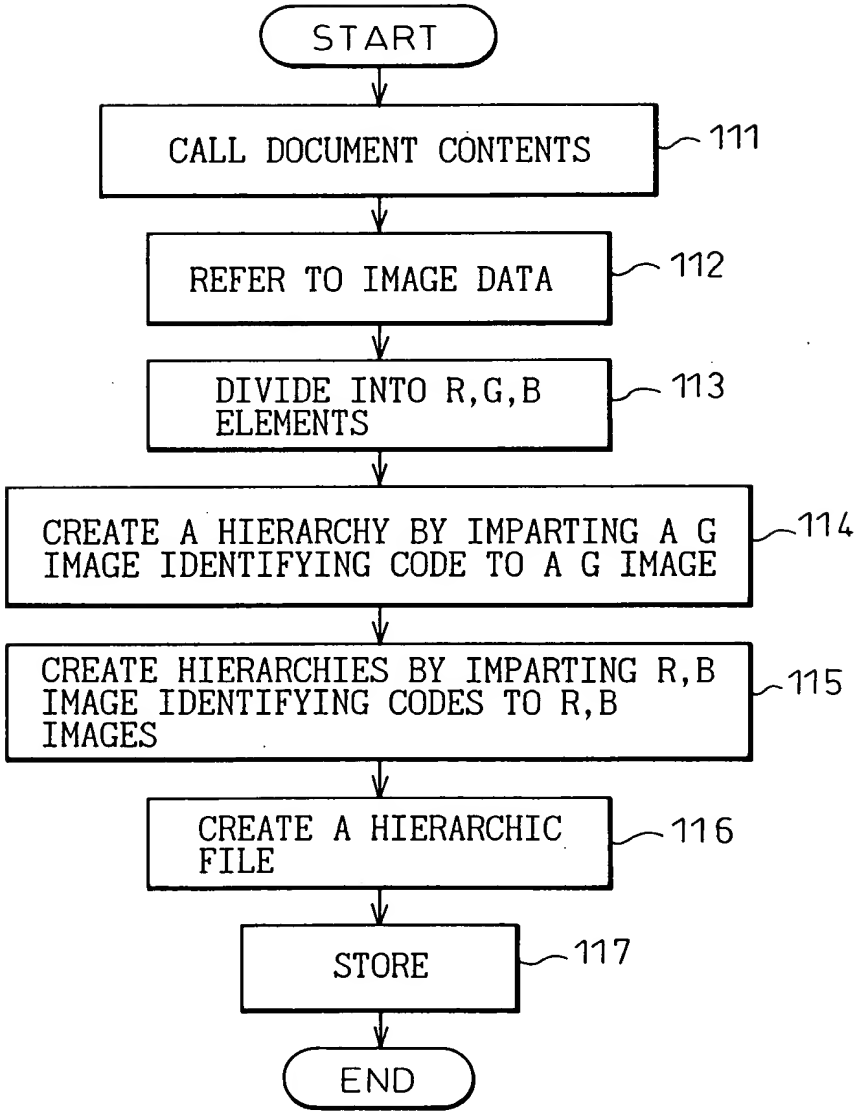

START
CALL DOCUMENT CONTENTS
111
REFER TO IMAGE DATA
112
DIVIDE INTO R,G,B ELEMENTS
113
CREATE A HIERARCHY BY IMPARTING A G IMAGE IDENTIFYING CODE TO A G IMAGE
114
CREATE HIERARCHIES BY IMPARTING R,B IMAGE IDENTIFYING CODES TO R,B IMAGES
115
CREATE A HIERARCHIC FILE
116
STORE
117
END

Fig.12

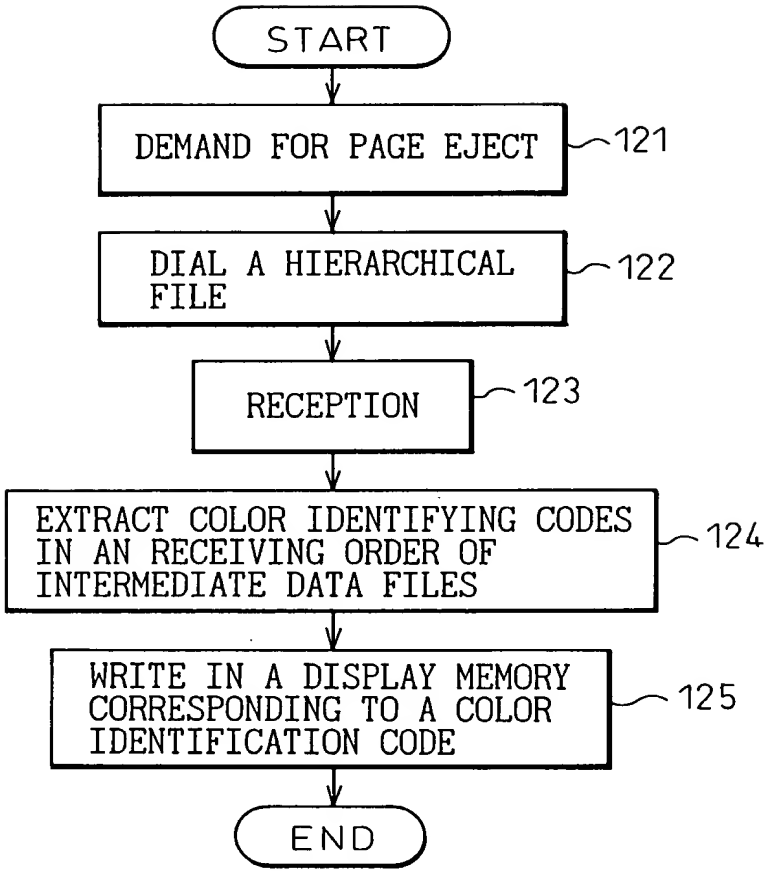

START
DEMAND FOR PAGE EJECT
121
DIAL A HIERARCHICAL FILE
122
RECEPTION
123
EXTRACT COLOR IDENTIFYING CODES IN AN RECEIVING ORDER OF INTERMEDIATE DATA FILES
124
WRITE IN A DISPLAY MEMORY CORRESPONDING TO A COLOR IDENTIFICATION CODE
125
END

Fig.13

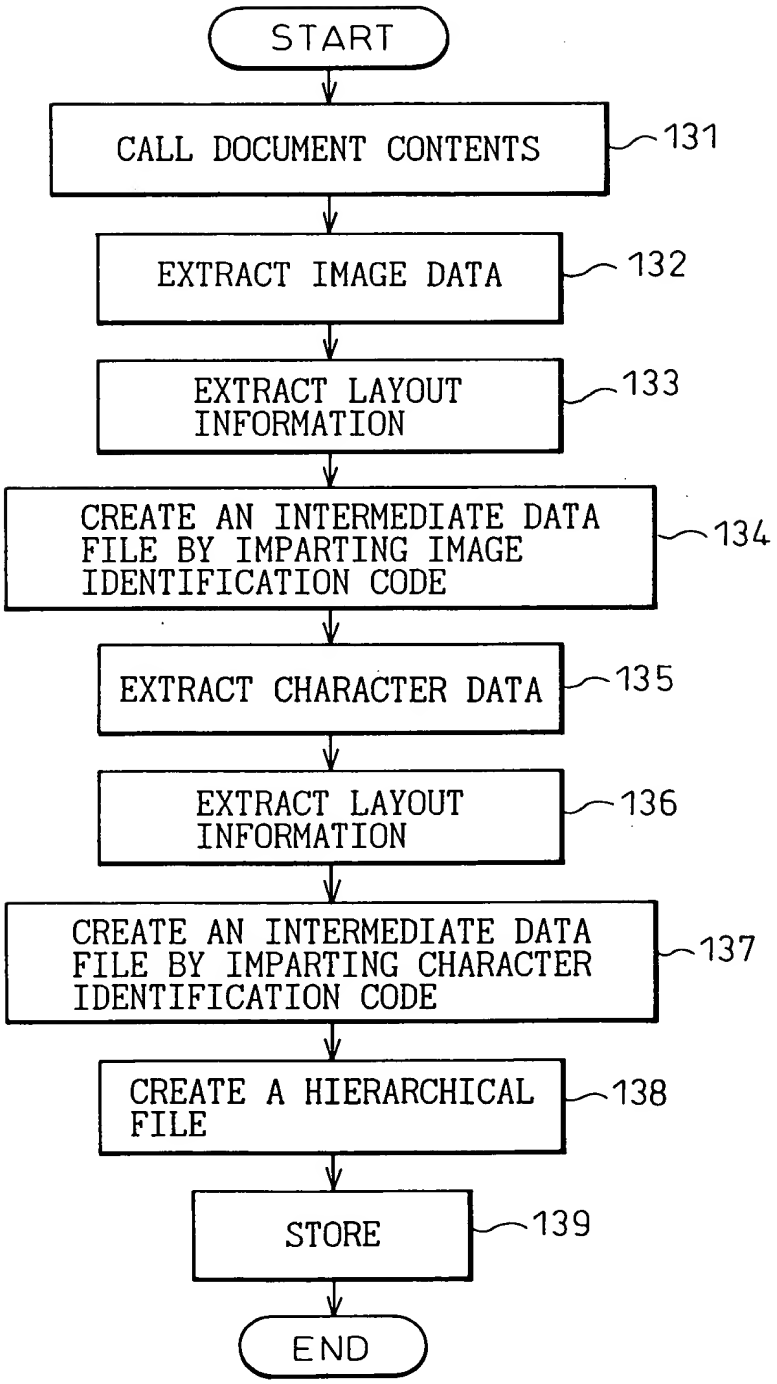

START
CALL DOCUMENT CONTENTS
131
EXTRACT IMAGE DATA
132
EXTRACT LAYOUT INFORMATION
133
CREATE AN INTERMEDIATE DATA FILE BY IMPARTING IMAGE IDENTIFICATION CODE
134
EXTRACT CHARACTER DATA
135
EXTRACT LAYOUT INFORMATION
136
CREATE AN INTERMEDIATE DATA FILE BY IMPARTING CHARACTER IDENTIFICATION CODE
137
CREATE A HIERARCHICAL FILE
138
STORE
139
END

Fig.14

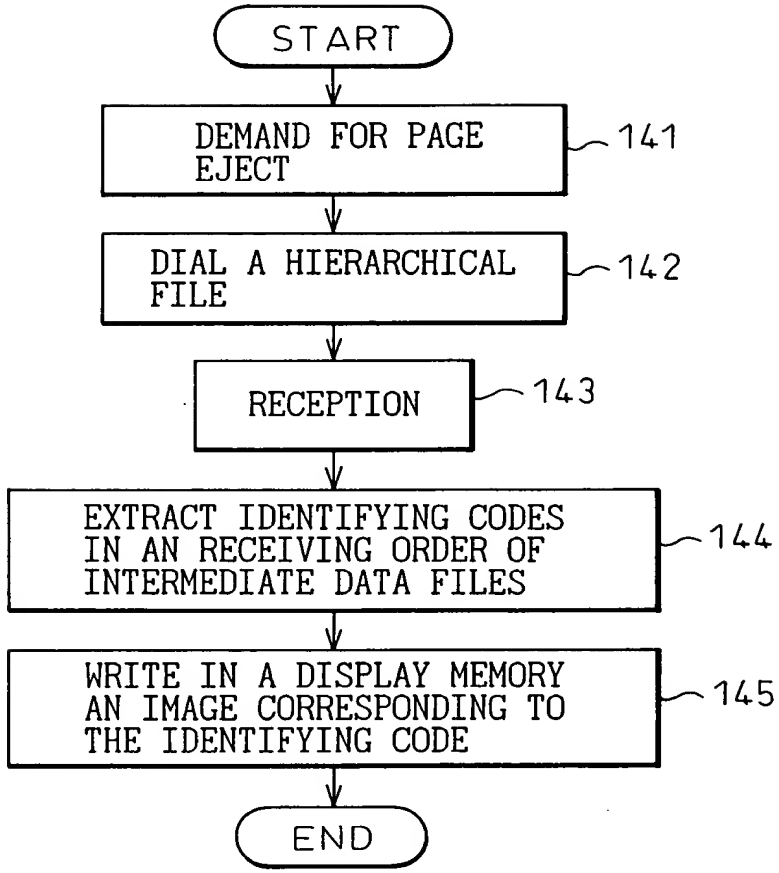

START
DEMAND FOR PAGE EJECT
141
DIAL A HIERARCHICAL FILE
142
RECEPTION
143
EXTRACT IDENTIFYING CODES IN AN RECEIVING ORDER OF INTERMEDIATE DATA FILES
144
WRITE IN A DISPLAY MEMORY AN IMAGE CORRESPONDING TO THE IDENTIFYING CODE
145
END

Fig.15

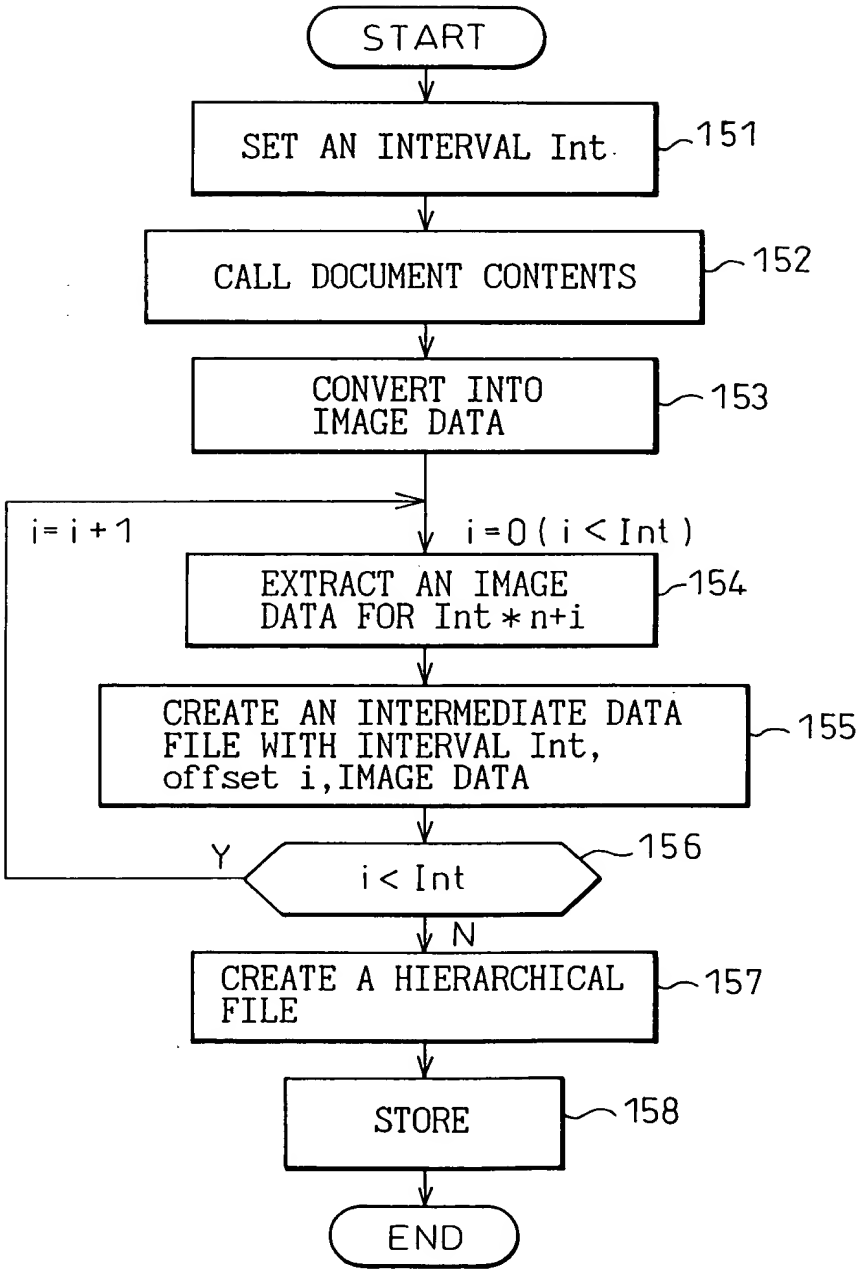

START
SET AN INTERVAL Int
151
CALL DOCUMENT CONTENTS
152
CONVERT INTO IMAGE DATA
153
i=i+1
i=0 (i < Int)
EXTRACT AN IMAGE DATA FOR Int * n+i
154
CREATE AN INTERMEDIATE DATA FILE WITH INTERVAL Int, offset i,IMAGE DATA
155
Y
i < Int
156
N
CREATE A HIERARCHICAL FILE
157
STORE
158
END

Fig.16

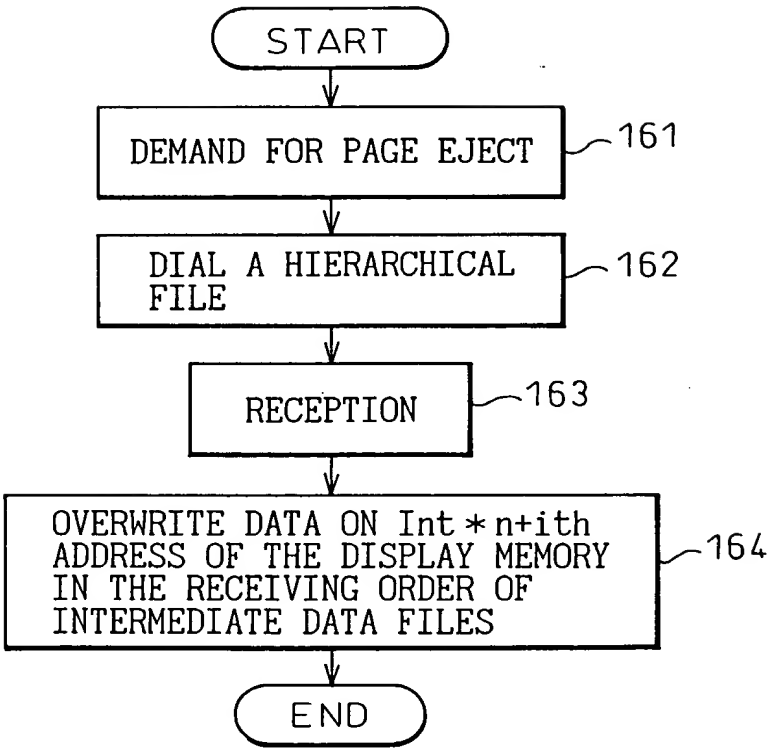

START
DEMAND FOR PAGE EJECT
161
DIAL A HIERARCHICAL FILE
162
RECEPTION
163
OVERWRITE DATA ON Int*n+ith ADDRESS OF THE DISPLAY MEMORY IN THE RECEIVING ORDER OF INTERMEDIATE DATA FILES
164
END

Fig.17

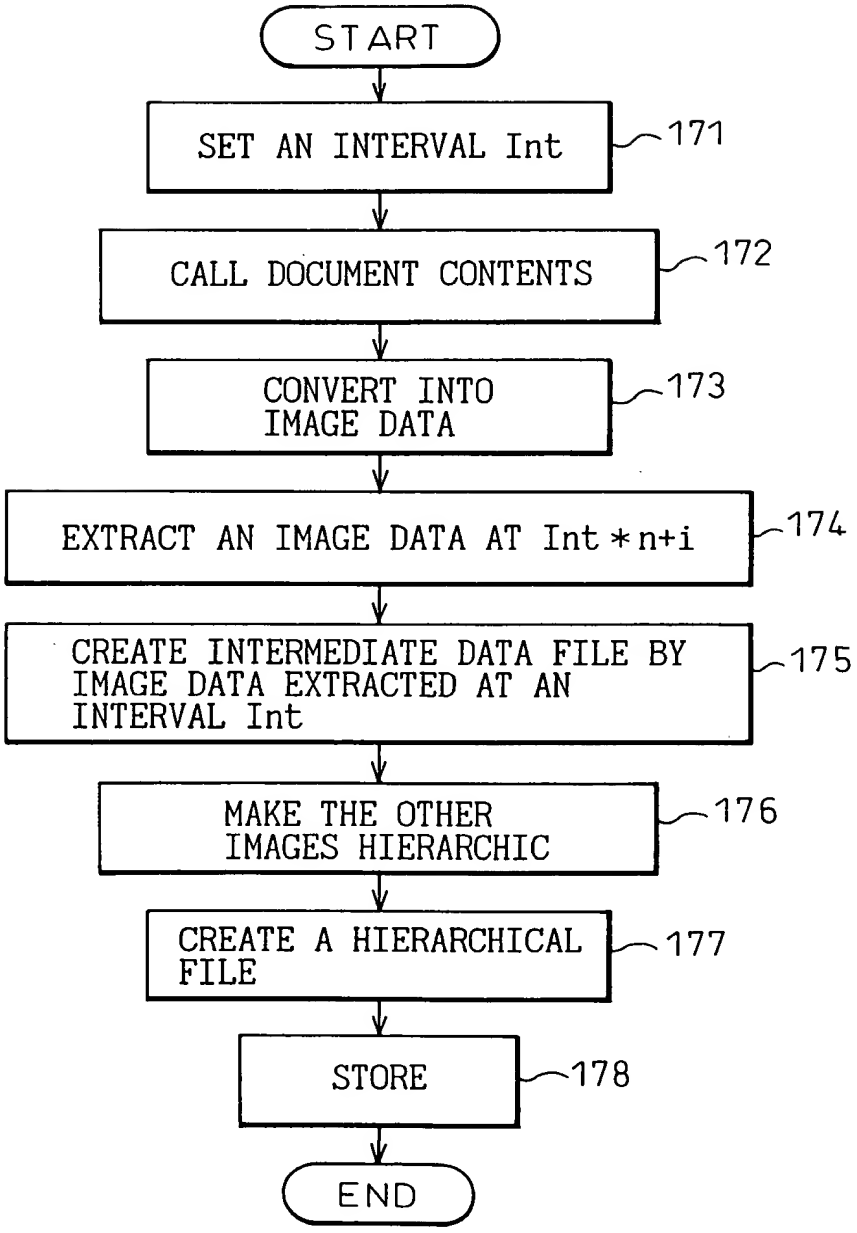

START
SET AN INTERVAL Int
171
CALL DOCUMENT CONTENTS
172
CONVERT INTO IMAGE DATA
173
EXTRACT AN IMAGE DATA AT Int*n+i
174
CREATE INTERMEDIATE DATA FILE BY IMAGE DATA EXTRACTED AT AN INTERVAL Int
175
MAKE THE OTHER IMAGES HIERARCHIC
176
CREATE A HIERARCHICAL FILE
177
STORE
178
END

Fig.18

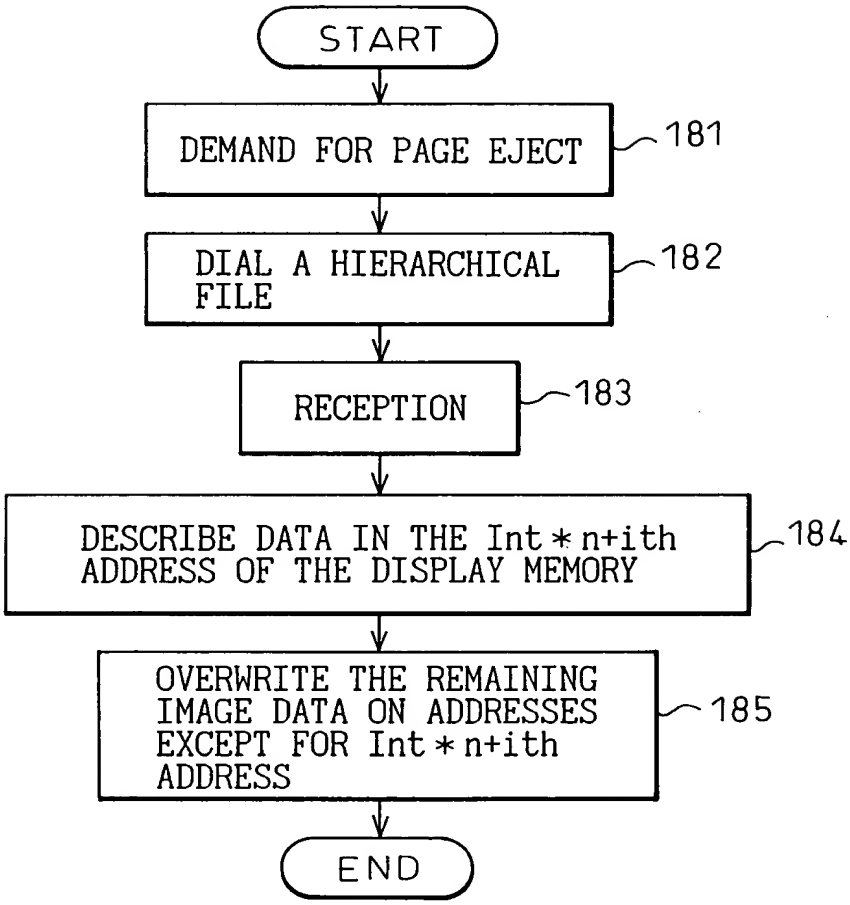

START
DEMAND FOR PAGE EJECT
181
DIAL A HIERARCHICAL FILE
182
RECEPTION
183
DESCRIBE DATA IN THE Int*n+ith ADDRESS OF THE DISPLAY MEMORY
184
OVERWRITE THE REMAINING IMAGE DATA ON ADDRESSES EXCEPT FOR Int*n+ith ADDRESS
185
END

Fig.19

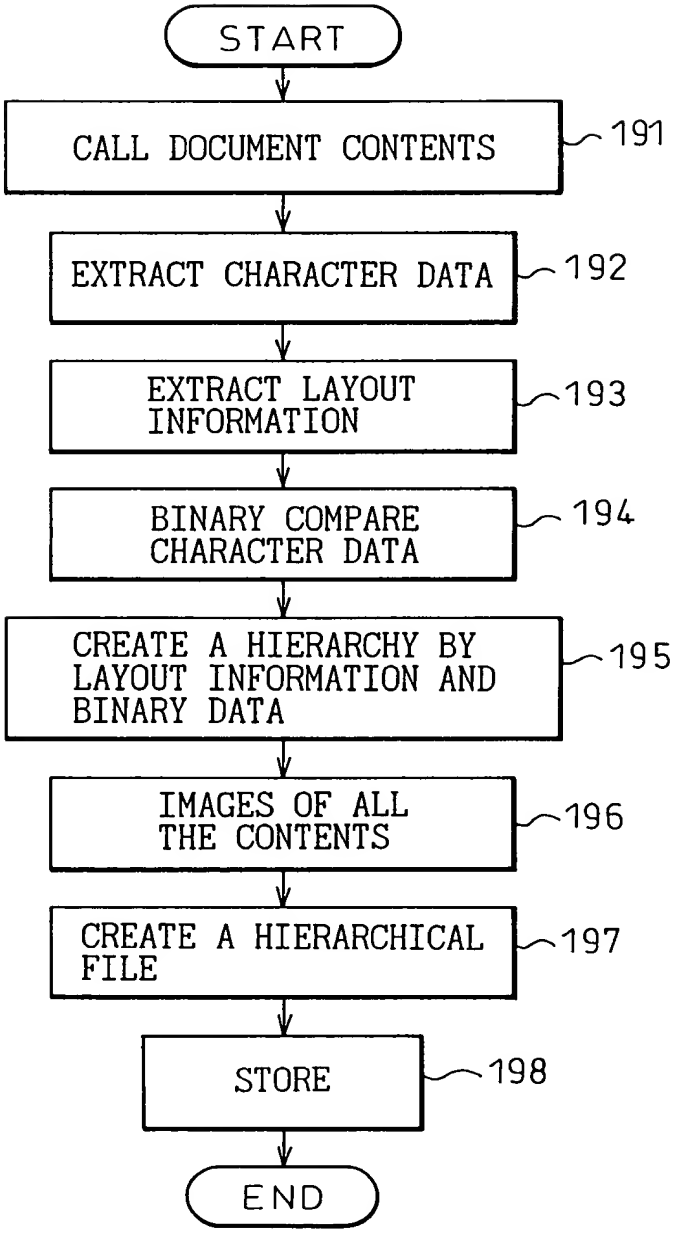

START
CALL DOCUMENT CONTENTS
191
EXTRACT CHARACTER DATA
192
EXTRACT LAYOUT INFORMATION
193
BINARY COMPARE CHARACTER DATA
194
CREATE A HIERARCHY BY LAYOUT INFORMATION AND BINARY DATA
195
IMAGES OF ALL THE CONTENTS
196
CREATE A HIERARCHICAL FILE
197
STORE
198
END

Fig.20

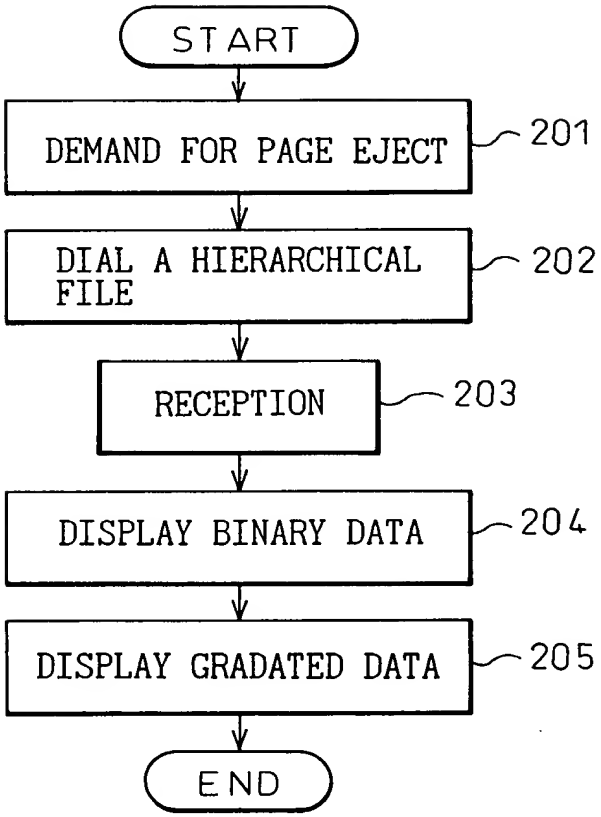

START
DEMAND FOR PAGE EJECT
201
DIAL A HIERARCHICAL FILE
202
RECEPTION
203
DISPLAY BINARY DATA
204
DISPLAY GRADATED DATA
205
END

Fig.21

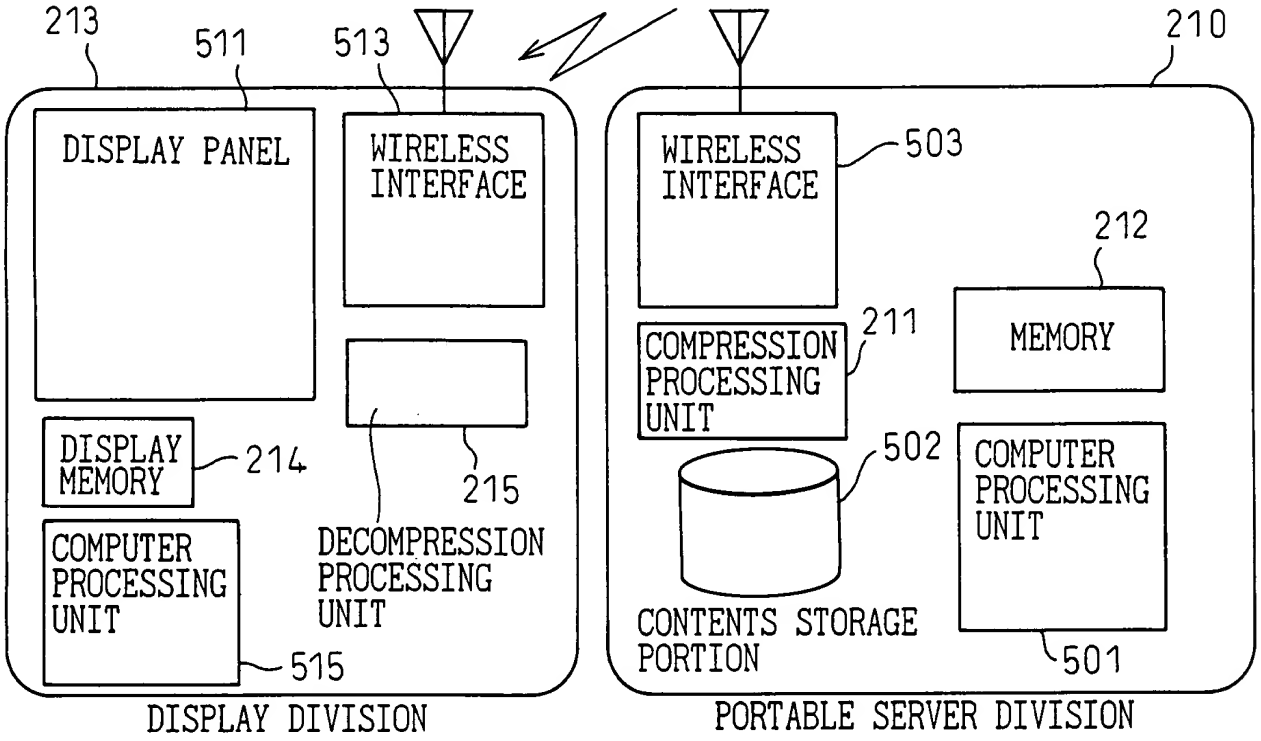

213
511
513
210
DISPLAY PANEL
WIRELESS INTERFACE
WIRELESS INTERFACE
503
212
211
COMPRESSION PROCESSING UNIT
MEMORY
DISPLAY MEMORY
214
215
502
COMPUTER PROCESSING UNIT
DECOMPRESSION PROCESSING UNIT
COMPUTER PROCESSING UNIT
515
CONTENTS STORAGE PORTION
501
DISPLAY DIVISION
PORTABLE SERVER DIVISION

Fig.22

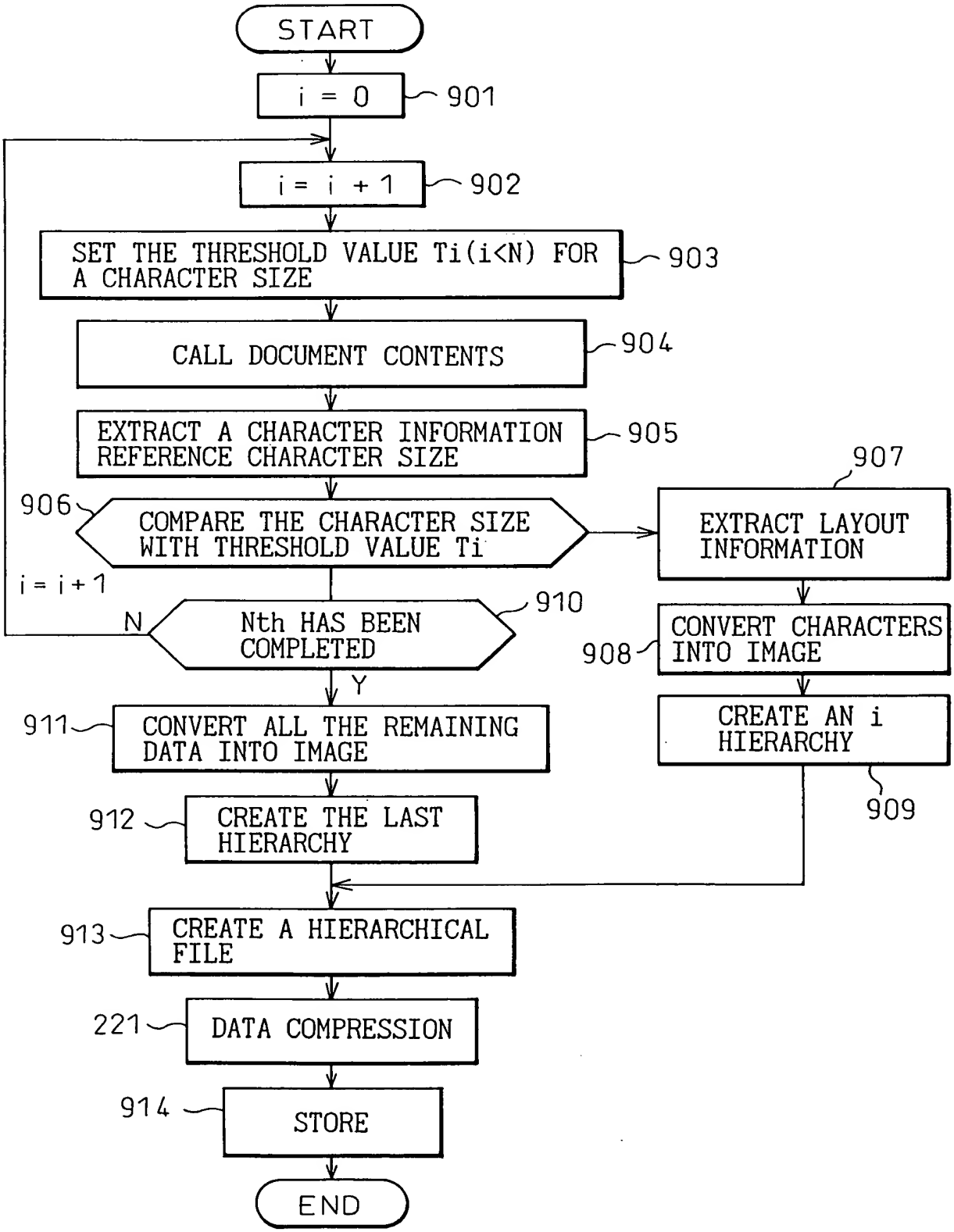

START
i = 0
901
i = i + 1
902
SET THE THRESHOLD VALUE Ti(i<N) FOR A CHARACTER SIZE
903
CALL DOCUMENT CONTENTS
904
EXTRACT A CHARACTER INFORMATION REFERENCE CHARACTER SIZE
905
906
COMPARE THE CHARACTER SIZE WITH THRESHOLD VALUE Ti
907
EXTRACT LAYOUT INFORMATION
i = i + 1
N
Nth HAS BEEN COMPLETED
910
CONVERT CHARACTERS INTO IMAGE
908
Y
911
CONVERT ALL THE REMAINING DATA INTO IMAGE
CREATE AN i HIERARCHY
909
912
CREATE THE LAST HIERARCHY
913
CREATE A HIERARCHICAL FILE
221
DATA COMPRESSION
914
STORE
END

Fig.23

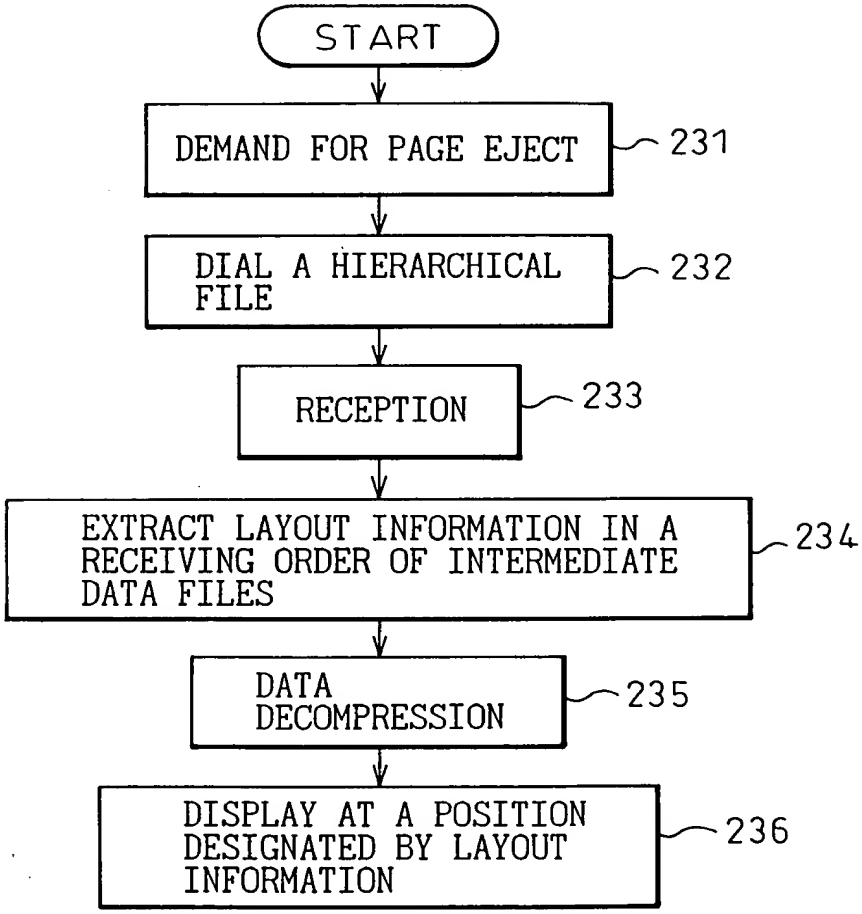

START
DEMAND FOR PAGE EJECT
231
DIAL A HIERARCHICAL FILE
232
RECEPTION
233
EXTRACT LAYOUT INFORMATION IN A RECEIVING ORDER OF INTERMEDIATE DATA FILES
234
DATA DECOMPRESSION
235
DISPLAY AT A POSITION DESIGNATED BY LAYOUT INFORMATION
236

Fig.24

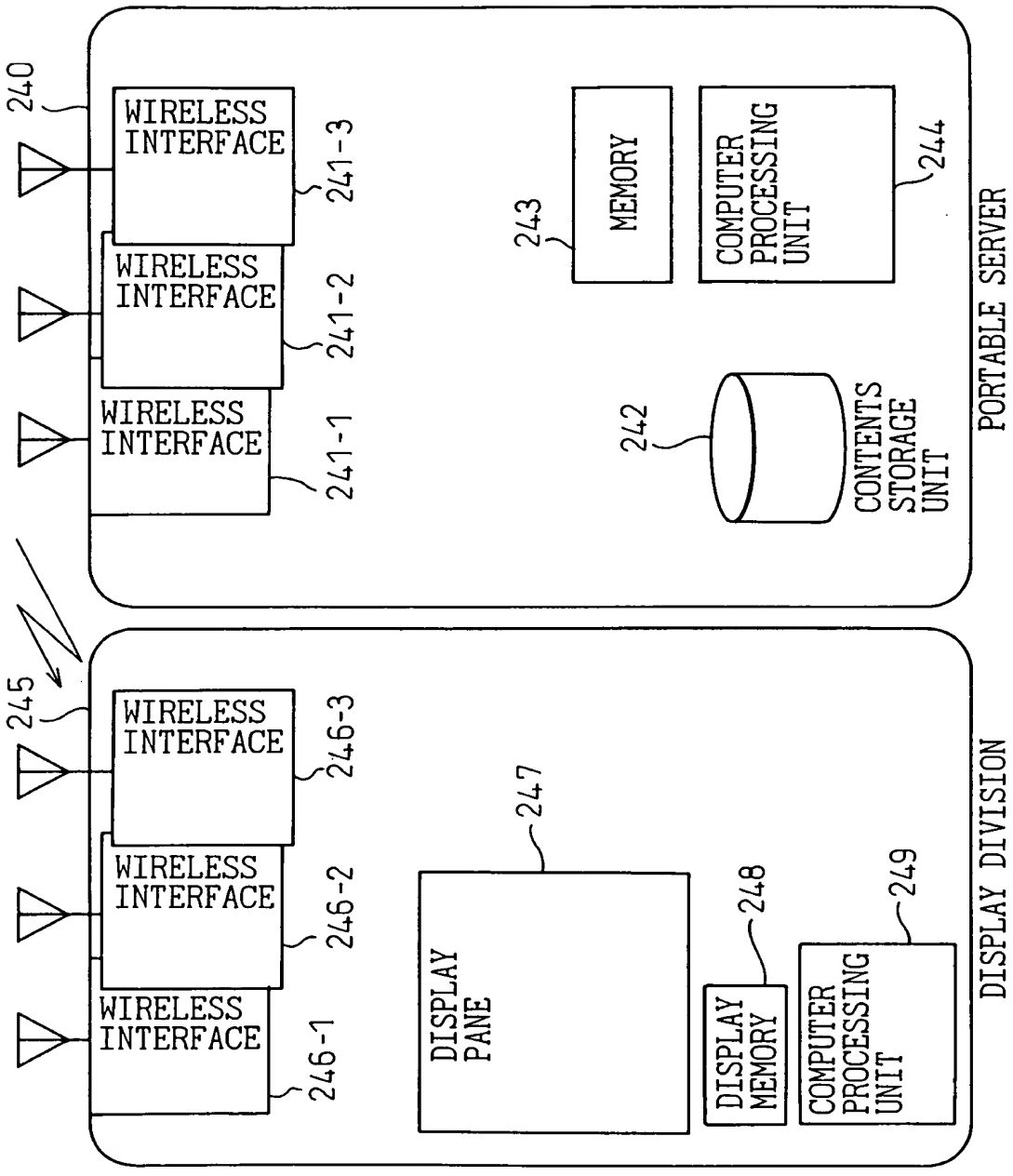

240
WIRELESS INTERFACE
241-3
WIRELESS INTERFACE
241-2
WIRELESS INTERFACE
241-1
243
MEMORY
COMPUTER PROCESSING UNIT
244
242
CONTENTS STORAGE UNIT
PORTABLE SERVER
245
WIRELESS INTERFACE
246-3
WIRELESS INTERFACE
246-2
WIRELESS INTERFACE
246-1
247
DISPLAY PANE
248
DISPLAY MEMORY
249
COMPUTER PROCESSING UNIT
DISPLAY DIVISION

Fig.25

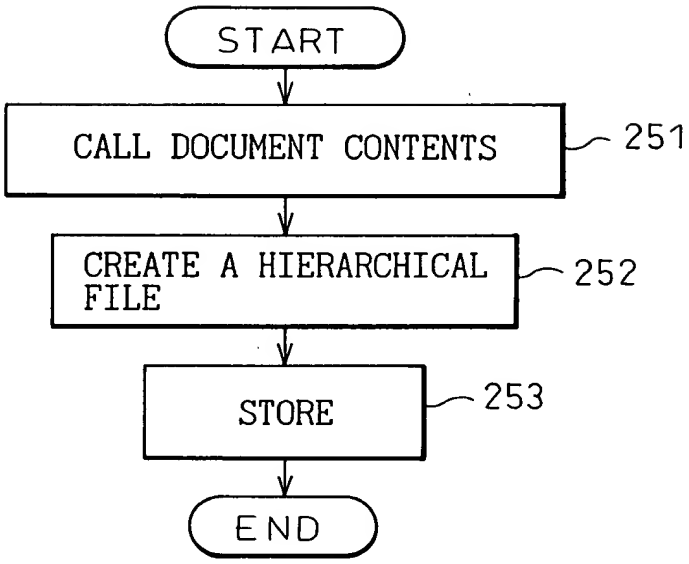

START
CALL DOCUMENT CONTENTS
251
CREATE A HIERARCHICAL FILE
252
STORE
253
END

Fig.26

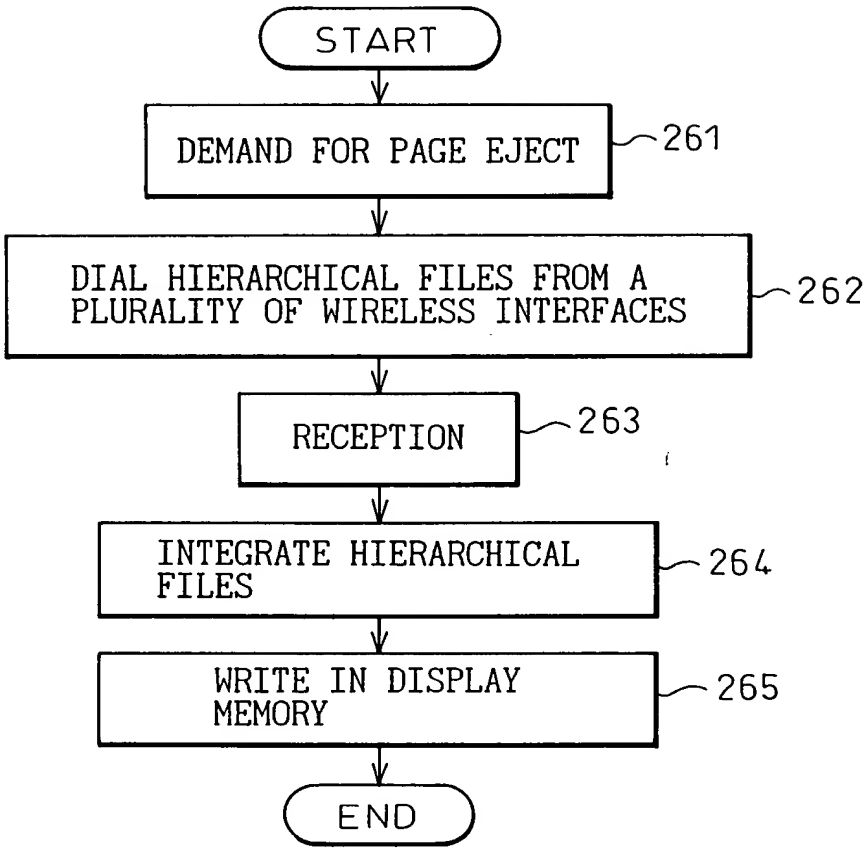

START
DEMAND FOR PAGE EJECT
261
DIAL HIERARCHICAL FILES FROM A PLURALITY OF WIRELESS INTERFACES
262
RECEPTION
263
INTEGRATE HIERARCHICAL FILES
264
WRITE IN DISPLAY MEMORY
265
END

Fig.27

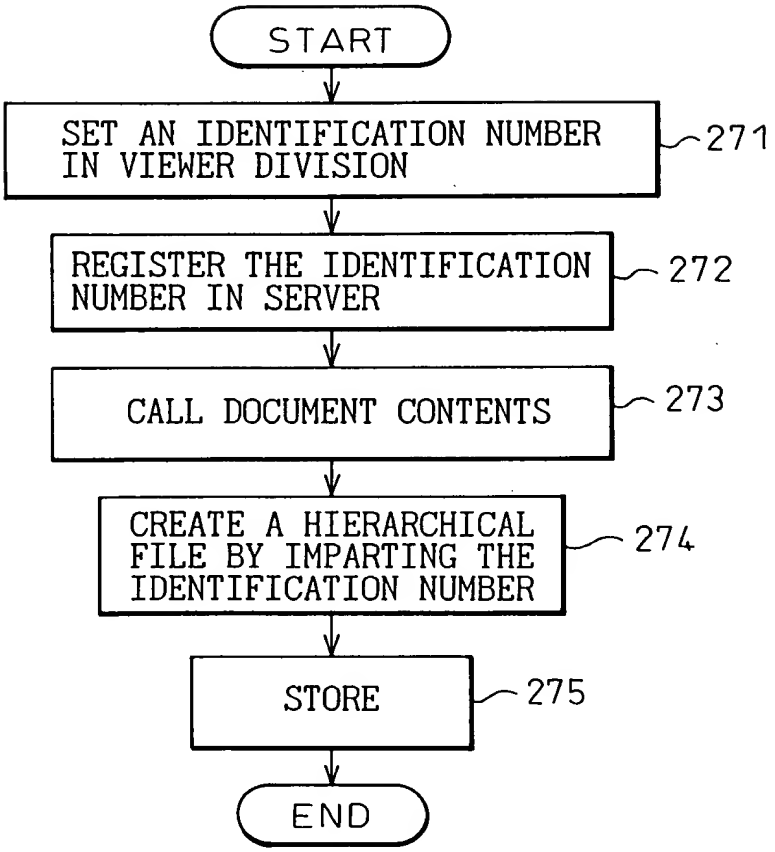

START
SET AN IDENTIFICATION NUMBER IN VIEWER DIVISION
271
REGISTER THE IDENTIFICATION NUMBER IN SERVER
272
CALL DOCUMENT CONTENTS
273
CREATE A HIERARCHICAL FILE BY IMPARTING THE IDENTIFICATION NUMBER
274
STORE
275
END

Fig.28

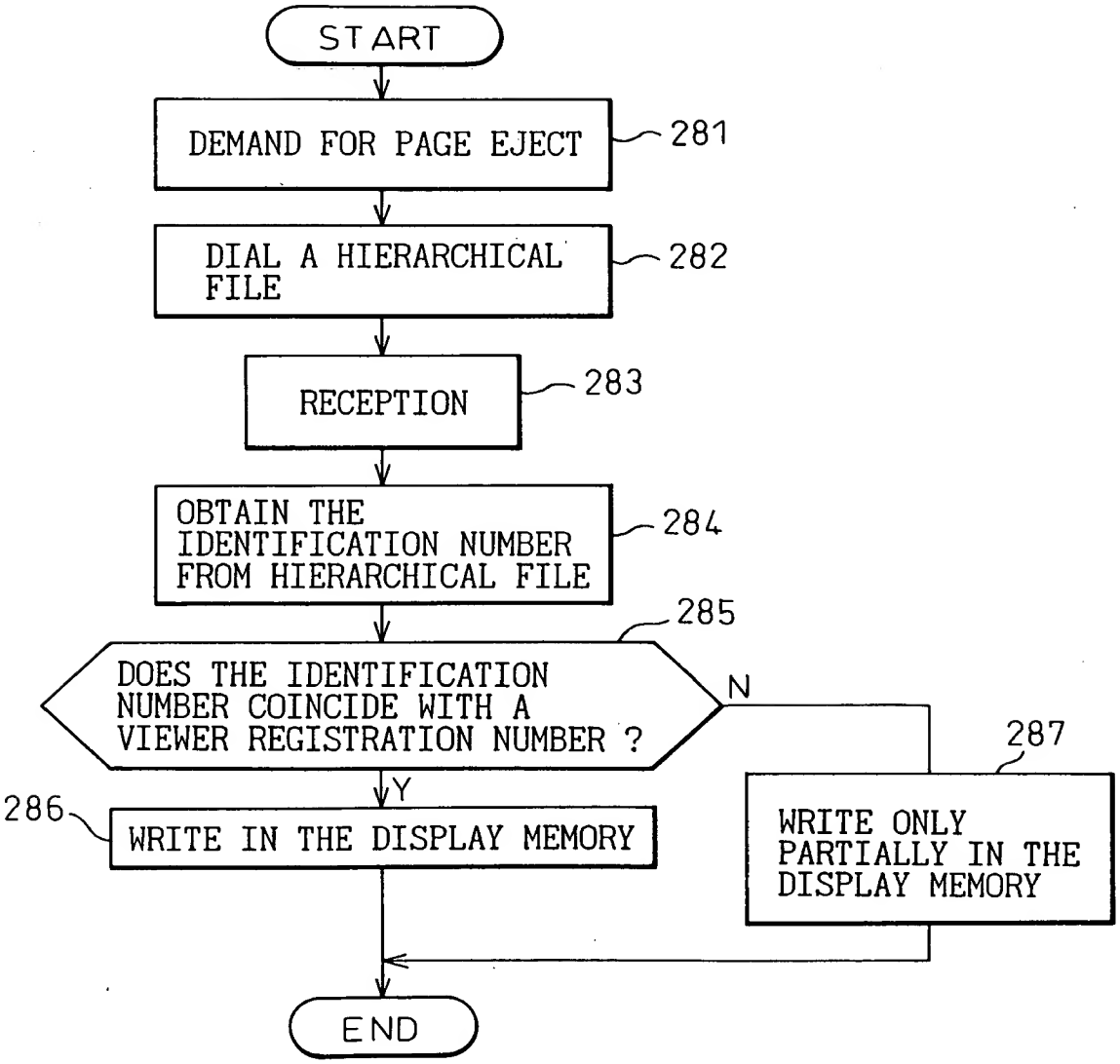

START
DEMAND FOR PAGE EJECT
281
DIAL A HIERARCHICAL FILE
282
RECEPTION
283
OBTAIN THE IDENTIFICATION NUMBER FROM HIERARCHICAL FILE
284
285
DOES THE IDENTIFICATION NUMBER COINCIDE WITH A VIEWER REGISTRATION NUMBER ?
N
Y
286
WRITE IN THE DISPLAY MEMORY
287
WRITE ONLY PARTIALLY IN THE DISPLAY MEMORY
END

Fig.29

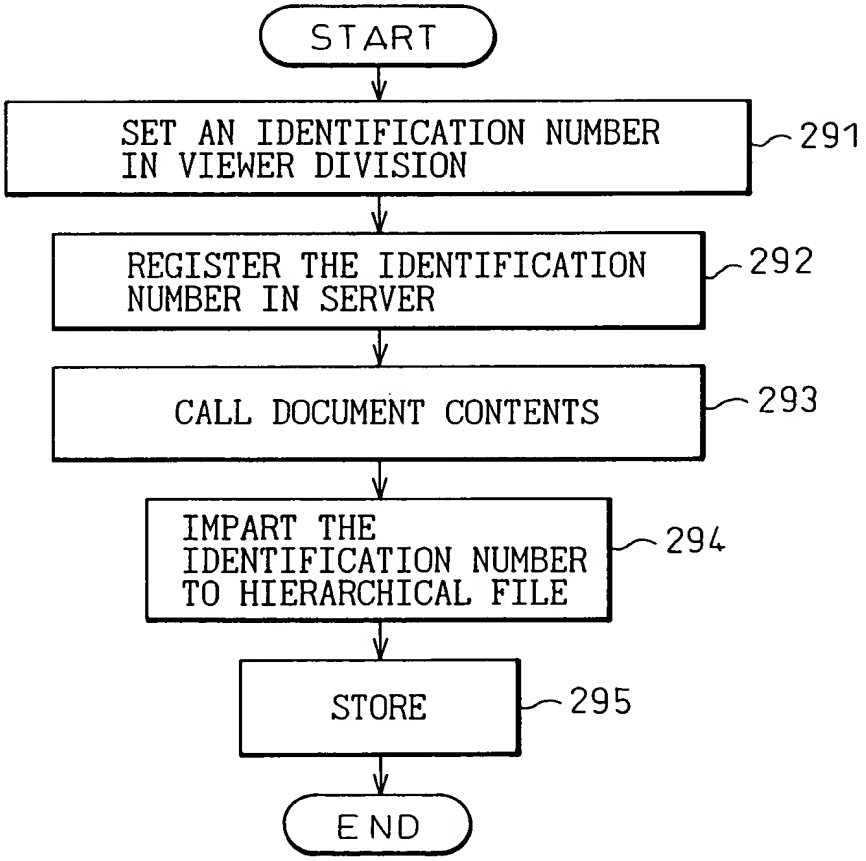

START
SET AN IDENTIFICATION NUMBER IN VIEWER DIVISION
291
REGISTER THE IDENTIFICATION NUMBER IN SERVER
292
CALL DOCUMENT CONTENTS
293
IMPART THE IDENTIFICATION NUMBER TO HIERARCHICAL FILE
294
STORE
295
END

Fig.30

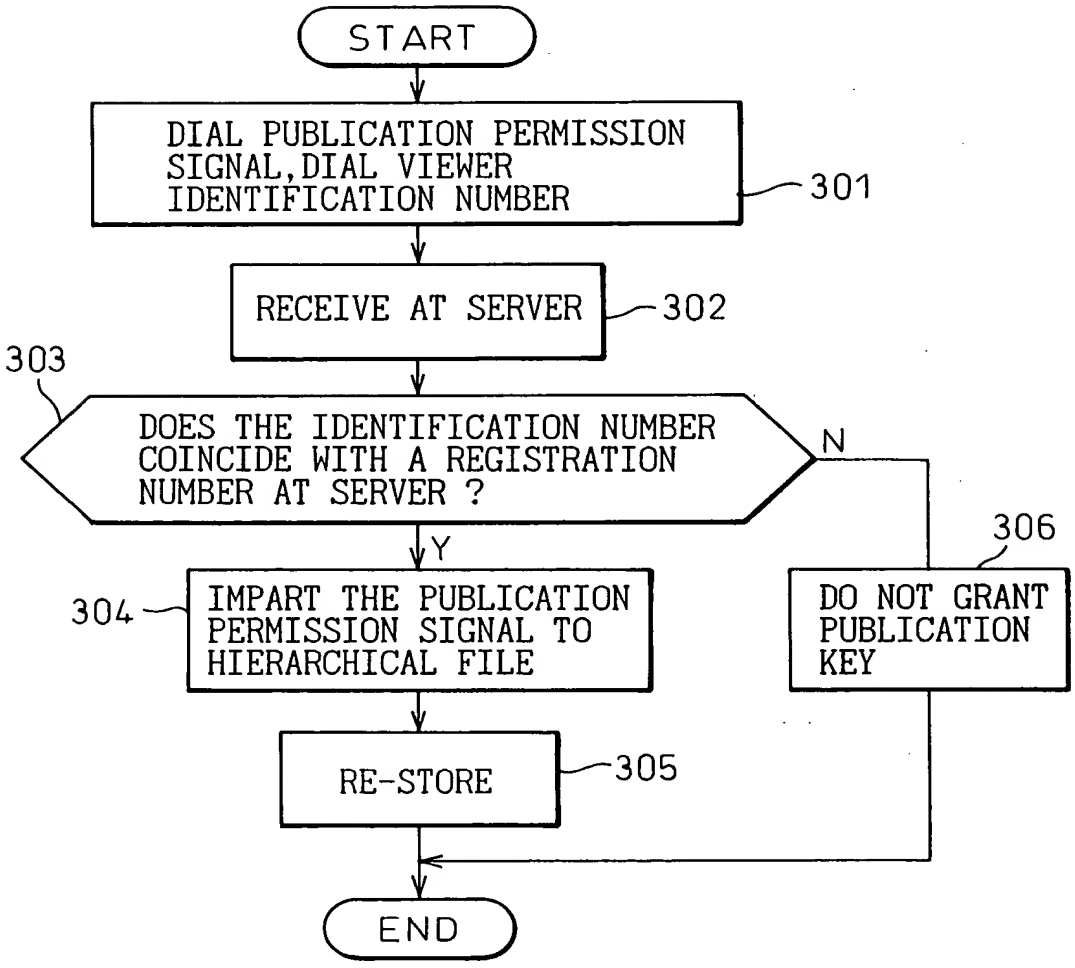

START
DIAL PUBLICATION PERMISSION SIGNAL, DIAL VIEWER IDENTIFICATION NUMBER
301
RECEIVE AT SERVER
302
303
DOES THE IDENTIFICATION NUMBER COINCIDE WITH A REGISTRATION NUMBER AT SERVER ?
N
Y
306
304
IMPART THE PUBLICATION PERMISSION SIGNAL TO HIERARCHICAL FILE
DO NOT GRANT PUBLICATION KEY
RE-STORE
305
END

Fig.31

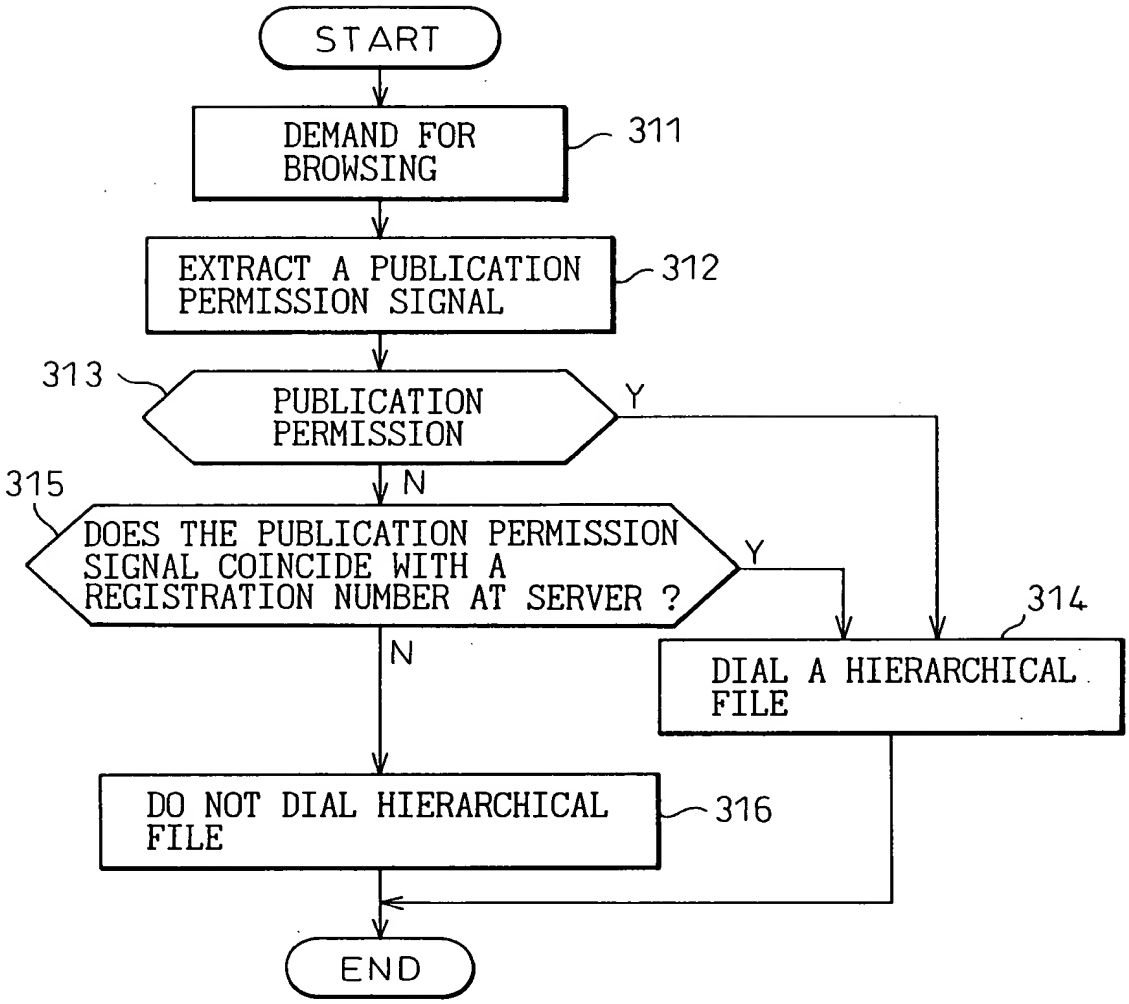

START
DEMAND FOR BROWSING
311
EXTRACT A PUBLICATION PERMISSION SIGNAL
312
313
PUBLICATION PERMISSION
Y
N
315
DOES THE PUBLICATION PERMISSION SIGNAL COINCIDE WITH A REGISTRATION NUMBER AT SERVER ?
Y
N
314
DIAL A HIERARCHICAL FILE
DO NOT DIAL HIERARCHICAL FILE
316
END

Fig.32

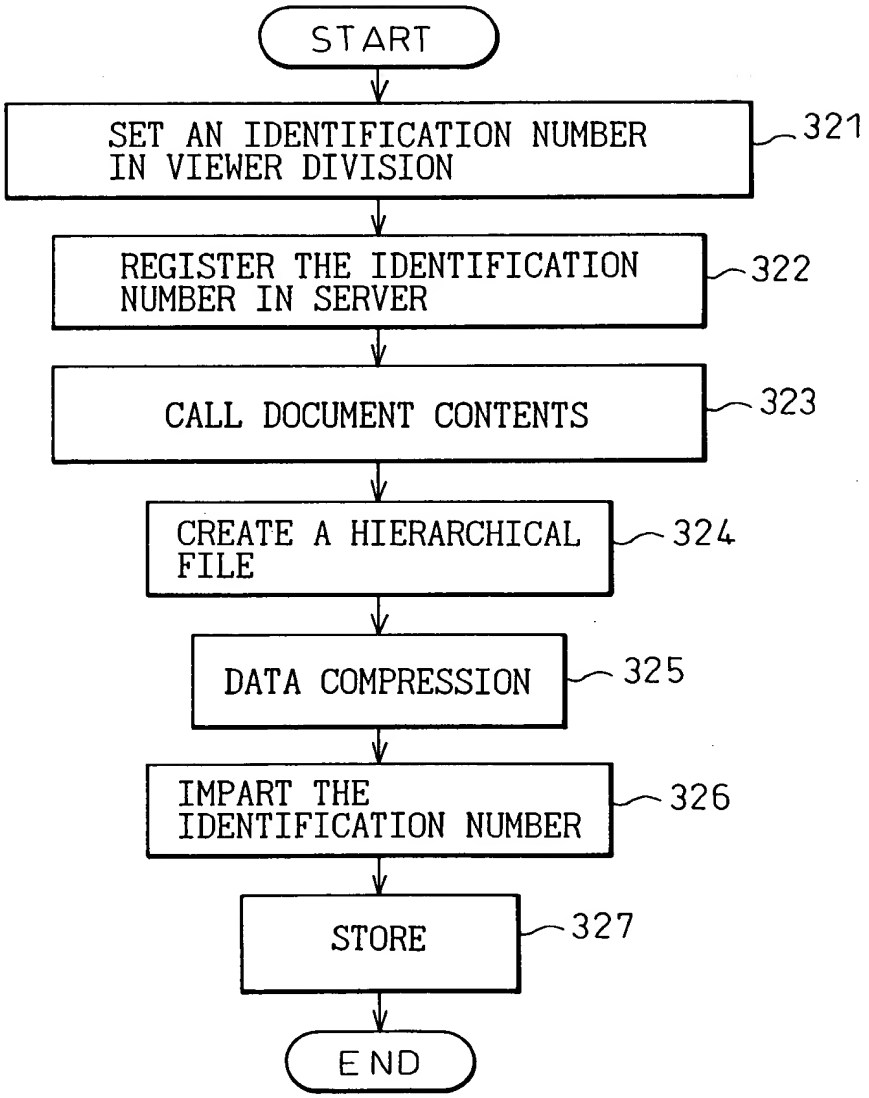
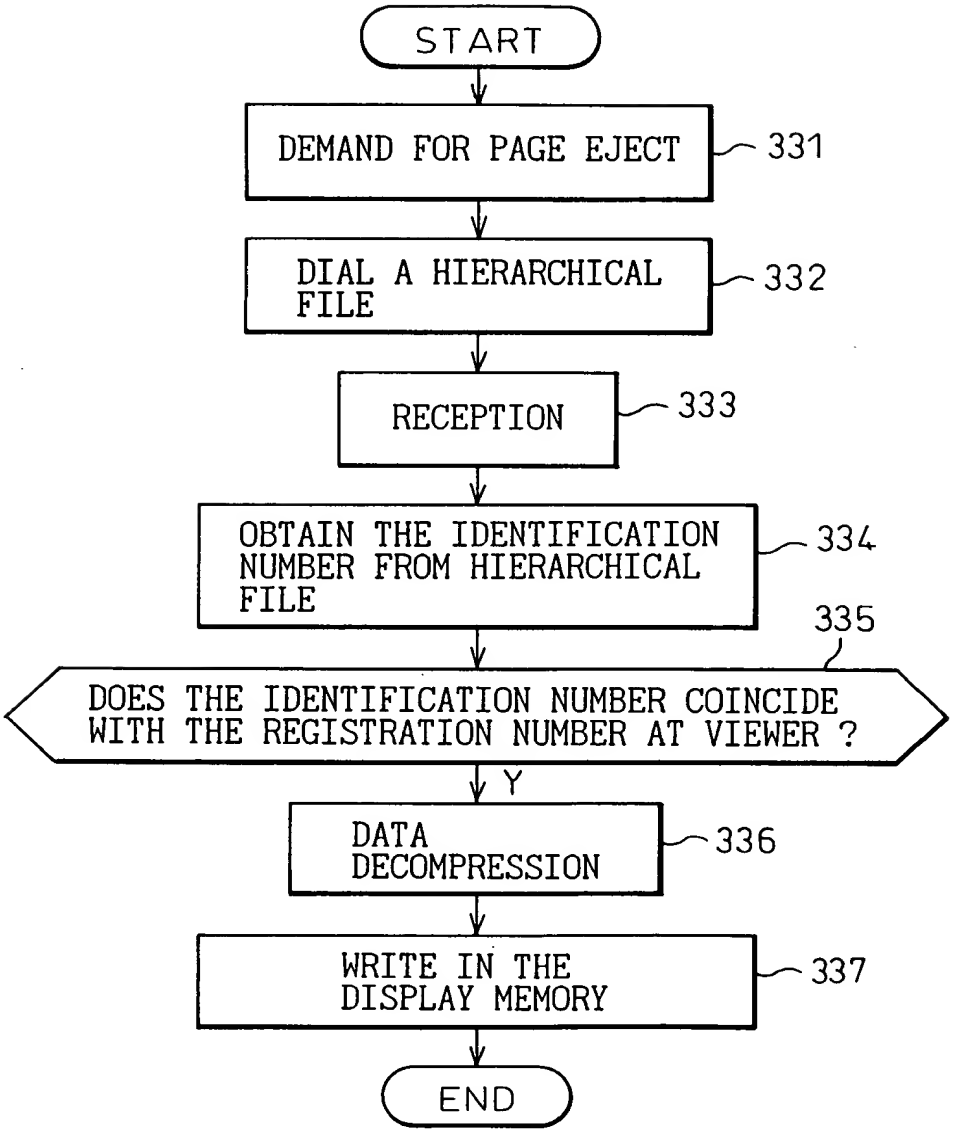

START
SET AN IDENTIFICATION NUMBER IN VIEWER DIVISION
321
REGISTER THE IDENTIFICATION NUMBER IN SERVER
322
CALL DOCUMENT CONTENTS
323
CREATE A HIERARCHICAL FILE
324
DATA COMPRESSION
325
IMPART THE IDENTIFICATION NUMBER
326
STORE
327
END

Fig.33


START
DEMAND FOR PAGE EJECT
331
DIAL A HIERARCHICAL FILE
332
RECEPTION
333
OBTAIN THE IDENTIFICATION NUMBER FROM HIERARCHICAL FILE
334
335
DOES THE IDENTIFICATION NUMBER COINCIDE WITH THE REGISTRATION NUMBER AT VIEWER ?
Y
DATA DECOMPRESSION
336
WRITE IN THE DISPLAY MEMORY
337
END